WHAT IS CLAIMED IS:

1. A method of treating viral infections and tumors induced thereby, the method comprising the steps of:

combining an immunologically effective component and a radioactive component to a radioimmunoconjugate (RIC), wherein the immunologically effective component is:

(a) a monoclonal antibody and its antigen binding fragment, respectively, against a viral or virus induced antigen expressed on the plasma membrane of virus infected cells,

and wherein the radioactive component is

(b) an alpha emitter or a beta emitter,

administering the radioimmunoconjugate (RIC) subsequent to or during an anti-retroviral therapy such as the standard triple therapy, and/or, for a HBV, HCV or HDV infection, subsequent to or during an IFN-α mono- or combination therapy with ribavirin, with the proviso that the RIC is not a therapeutical agent for the treatment of HIV infections and of tumors induced thereby, if the monoclonal antibody or its fragment comprises a beta emitter as a radioactive component.

2. The method of claim 1, wherein the viral infection is a HIV, HBV, HCV, HDV, HTLV, CMV, EBV, or HHV8 infection.

3. The method of claim 2, wherein the infection is an infection with HIV-1, HIV-2, or HIV-3, or an infection with HTLV-1 or HTLV-2.

4. The method of claim 1, wherein, in the step of administering, the radioimmunoconjugate is given intravenously several times for a total body dosage of 25-300 mCi under in-patient radiation shielding for one day up to several days.

5. The method of claim 1, wherein the α- and β-emitter, respectively, has a short half-life of 10 days and less.

6. The method of claim 5, wherein the α-emitter is or contains at least one of bismuth-213, astatine-211, radium-223, actinium-225, and wherein the β-emitter is or contains at least one of ^{131}I, ^{89}Sr, ^{177}Lu, ^{186}Lu, ^{186}Re, ^{188}Re, ^{105}Rh, ^{47}Sc, ^{153}Sm, and ^{149}Tb.

7. The method according to claim 1, wherein the step of administering is performed:

- subsequent to or during an anti-retroviral therapy such as the standard triple therapy in the case of a HIV infection;

- subsequent to or during an IFN-α mono or combination therapy with ribavirin in the case of a HBV, HCV or HDV infection;
- before, during or subsequent to a surgical procedure, in particular a transplantation of a cirrhotically modified liver due to a viral hepatitis or a resection of a hepatocellular carcinoma induced by a viral hepatitis;
- under the protection of a stem cell transplantation;
- before, during or subsequent to an administration of an immunological component, as defined in claim 1, without a radioactive component.